

## **REMARKS**

### **Status of the Claims**

Claims 23-42 are now present in this application. Claims 23, 24, 30, 41 and 42 are independent. Elected product claim 23 has been amended to be in product by process format.

Claims 1-22 and 49 have been canceled, claims 40-42 have been added, and claims 23, 30-32 and 37 have been amended. Claims 24-29, 34-36 and 38 are withdrawn. Reconsideration of this application, as amended, is respectfully requested.

### **Priority under 35 U.S.C. § 119**

Applicants thank the Examiner for acknowledging Applicants' claim for foreign priority under 35 U.S.C. § 119, and receipt of the certified priority document.

### **Information Disclosure Citation**

Applicants thank the Examiner for considering the reference supplied with the Information Disclosure Statement filed June 30, 2008, and for providing Applicants with an initialed copy of the PTO-SB08 form filed therewith.

### **Restriction Requirement**

The Examiner has made the Restriction Requirement final and has withdrawn claims 24-29, 34-36, 38 and 39 from further consideration.

### Objections to the Claims

The Examiner has objected to claim 39 because it is mis-numbered as claim 49, *see Office Action*, page 2. Claim 49 has been cancelled and new claim 40 has been submitted to reintroduce the cancelled subject matter. Thus, Applicant(s) have corrected the deficiencies pointed out by the Examiner. Reconsideration and withdrawal of this objection are respectfully requested.

### Rejections Under 35 U.S.C. § 101 and 35 U.S.C. § 112, First Paragraph

Claim 37 is rejected under 35 U.S.C. § 101, or in the alternative, under 35 U.S.C. § 112, first paragraph, because the Examiner asserts that the claim is not supported by an asserted utility, *see Office Action*, pages 3-4. Specifically, the Examiner states that the claim is directed to a use, but the claims fail to set forth any steps to execute the use. The Examiner recommends amending claim 37 to describe a composition comprising the biopolymer.

Applicants have amended claim 37 according to the Examiner's suggestions. Thus these rejections should be withdrawn.

Claims 23, 30-33, and 37 are also rejected under 35 U.S.C. § 112, first paragraph, *see Office Action*, pages 4-5. Specifically, the Examiner states that it is unclear whether or not the deposit described in the present application meets all of the criteria under 37 C.F.R. § 1.801-1.809. This rejection is respectfully traversed. Reconsideration and withdrawal of these rejections are respectfully requested.

*Lactococcus lactis* NRRLB-30656 was deposited with the Agricultural Research Culture Collection (NRRL), which is located at 1815 N. University Street, Peoria, Illinois 61604, on May 15, 2003, in accordance with the Budapest Treaty, *see* enclosed copy of deposit receipt obtained from the public file history in the corresponding European Application, *i.e.*, EP 04 806 403.4.

Applicants affirm that NRRLB-30656 has been accepted for deposit under the Budapest Treaty and that all restrictions on the availability to the public of the material so deposited will be irrevocably removed upon the granting of a patent.

Finally, the Examiner should note that the instant application already includes the date of deposit and the address of the depository and that the deposit is referred to in the instant application. The name of the depository and the complete taxonomic description are also already described in the present application, *see* page 4 and Example 1 of the substitute specification.

Applicants respectfully submit that the claims and substitute specification, as amended, comply with the requirements of 35 U.S.C. § 112, first paragraph. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Claims 23, 30-33, and 37 are rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement, *see Office Action*, pages 7-8. The Examiner asserts that the substitute specification fails to support the “biopolymer having a composition of 0.2 to 0.7 glucose/fructose ratio” and “[n]on-hygrosopic.”

In response, the Examiner’s attention is directed to the certified English translation of the specification and claims, which was submitted to the United States Patent and Trademark Office on January 7, 2008. In particular, original claims 3 and 4 describe the subject matter in claim 23, which the Examiner asserts is not supported. Accordingly, this rejection should be withdrawn.

#### **Rejection Under 35 U.S.C. § 112, 2nd Paragraph**

Claims 23, 30-33, and 37 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly indefinite, *see Office Action*, pages 6-8. Specifically, the Examiner states that he does not understand which products of *L. lactis* NRRLB-30656 are being claimed. With respect to claim 33,

the Examiner states that the recitation “cellulose membrane having a pore size greater than 10,000-30,000 Dalton” is unclear since a Dalton describes molecular weight and not a geometrical unit to define pore size. Claim 33 is also said to be indefinite for the recitation “a pore size greater than 10,000-30,000 Dalton” since it is unclear if the pore size is greater than 10,000 Dalton or greater than 30,000 Dalton. These rejections are respectfully traversed.

In order to overcome this rejection, Applicants have amended claims 23, 30, 33 and 41 to correct each of the deficiencies specifically pointed out by the Examiner. For example, the Examiner should note that with respect to claim 33, the regenerated cellulose membrane collects the biopolymer by size exclusion for molecular weights between 10,000 and 30,000 Dalton.

Applicants respectfully submit that the claims, as amended, particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

#### **Rejections Under 35 U.S.C. § 102/103 and 35 U.S.C. § 103**

Claims 23, 30, 33, and 37 are rejected under 35 U.S.C. § 102(b) as allegedly anticipated, or in the alternative, as allegedly obvious over Manaca De Nardra *et al.*, *International Journal of Food Microbiology*, 1995, 27:101-106, (“Manaca De Nardra”), *see Office Action*, pages 8-11. Specifically, the Examiner asserts that Manaca De Nardra expressly describes a biopolymer having the glucose/fructose ratio described in the instant claims. The Examiner further states that the additional properties of the claimed biopolymer are not expressly described in the cited reference. However, the Examiner believes that these additional properties are inherent to Manaca De Nardra’s biopolymer. Claims 23, 30-33, and 37 are also rejected under 35 U.S.C. § 103(a) as allegedly obvious over Manaca De Nardra in view of a described rationale *see Office*

Action, pages 12-13. Specifically, the Examiner asserts the rationale that reaction concentrations, temperatures, humidity, volumes of ethanol and the sequence of precipitation are result effective variables that would have been obvious to an ordinary artisan at the time of the invention. These rejections are respectfully traversed. Reconsideration and withdrawal thereof are respectfully requested.

The Examiner's attention is directed to the following comparative table that shows several differences between the present invention and the Manca de Nadra publications. More specifically, the biopolymer of the present invention is completely different from the biopolymer disclosed by the prior art in view of the following:

Features	Manca de Nadra (Prior art)	<i>Lactococcus lactis</i> NRRL B-30656 (The present invention)
Microorganism	<i>Pediococcus pentosaceus</i>	<i>Lactococcus lactis</i> NRRL B-30656
Biopolymer production form	During cultivation, from beginning of the exponential phase until the 22 <sup>nd</sup> hour, as stated in Results and discussion.	The biopolymer is produced by enzymatic reaction, employing an enzymatic complex produced by <i>Lactococcus lactis</i> cultures. The enzymatic complex is contacted with sucrose in aqueous solution and the biopolymer is formed. Two production stages are required: cultivation and enzymatic reaction.
Type of biopolymer	Contains as hexoses: glucose, fructose and galactose. It is hydrolyzed by action of HCl 4N as described under methods and materials and Table 1.	The biopolymer contains glucose and fructose. It is entirely stable to strong acids and strong bases. It is not hydrolyzed by action of HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH or KOH. Due to being stable to acids and bases, it is a soluble fiber that may be employed in functional nutrition. This property or characteristic of the biopolymer is featured in several claims of the patent. We believe this a substantial difference from the two biopolymers that should be presented as an incontrovertible argument.

Accordingly, the Examiner should note that that biopolymer of the present invention is obtained through enzyme technology whereas the biopolymer of the prior art is obtained through fermentation.

The Examiner should further note that method claim 30 has been drafted in independent form. Thus, the Examiner should consider the step of “incubating an enzymatic extract or preparation from a *Lactococcus lactis* strain (NRRLB-30656).” Manaca De Nardra does not teach or suggest this step. Accordingly, claim 30 and the claims that incorporate the elements of proposed amended claim 30 are not anticipated or rendered obvious in view of the cited reference.

Further, independent composition claim 41 is directed to an isolated and purified glucose and fructose *Lactococcus lactis* strain (NRRLB-30656) biopolymer. In contrast, Manaca De Nardra describes a *Pediococcus pentosaceus* biopolymer. Accordingly the cited reference fails to teach all of the elements of new proposed claim 41.

### Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

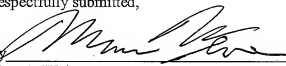
In view of the above amendment, Applicants believe the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned below to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Director is hereby authorized to charge any fees required during the pendency of the above-identified application or credit any overpayment to Deposit Account No. 02-2448.

Dated: September 27, 2010

Respectfully submitted,

By   
\_\_\_\_\_  
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Registration No.: 32181  
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Falls Church, VA 22040-0747  
703-205-8000

**BUDAPEST TREATY ON THE INTERNATIONAL RECOGNITION OF THE DEPOSIT  
OF MICROORGANISMS FOR THE PURPOSE OF PATENT PROCEDURES**

**INTERNATIONAL FORM**

TO  
National University Of Colombia  
Ciudad Universitaria, Rectoria General  
Bogota, Columbia  
South America  
NAME AND ADDRESS OF THE PARTY TO WHOM  
THE VIABILITY STATEMENT IS ISSUED

**VIABILITY STATEMENT**

issued pursuant to Rule 10.2 by the  
INTERNATIONAL DEPOSITARY AUTHORITY  
identified at the bottom of this page

<b>I. DEPOSITOR</b>	<b>II. IDENTIFICATION OF THE MICROORGANISM</b>
Name: National University Of Colombia Ciudad Universitaria, Rectoria General Address: Bogota, Colombia, South America	Depositor's taxonomic designation and accession number given by the INTERNATIONAL DEPOSITARY AUTHORITY: Lactococcus lactis NRRL B-30656 Date of: May 15, 2003 <input checked="" type="checkbox"/> <sup>2</sup> Original Deposit <input type="checkbox"/> <sup>2</sup> New Deposit <input type="checkbox"/> <sup>2</sup> Repropagation of Original Deposit

**III. (a) VIABILITY STATEMENT**

Deposit was found: ☒ Viable ☐ Nonviable on (Date) May 16, 2003  
International Depositary Authority's preparation was found viable on (Date)<sup>1</sup> NA

**III. (b) DEPOSITOR'S EQUIVALENCY DECLARATION**

Depositor determined the International Depositary Authority's preparation was  
☐ <sup>2</sup> Equivalent ☐ <sup>2</sup> Not equivalent to deposit on \_\_\_\_\_ (Date)  
Signature of Depositor \_\_\_\_\_

**IV. CONDITIONS UNDER WHICH THE VIABILITY TEST WAS PERFORMED (Depositors/Depositary)<sup>4</sup>**

**V. INTERNATIONAL DEPOSITARY AUTHORITY**

Name: Agricultural Research Culture  
Collection (NRRL)  
International Depositary Authority  
Address: 1815 N. University Street  
Peoria, Illinois 61604 U.S.A.

Signature(s) of person(s) having the power  
to represent the International Depositary  
Authority or of authorized official(s):  
*J. Amey*

Date: 5-19-03

<sup>1</sup> Indicate the date of the original deposit or when a new deposit has been made.

<sup>2</sup> Mark with a cross the applicable box.

<sup>3</sup> In the cases referred to in Rule 10.2(a)(ii) and (iii), refer to the most recent viability test.

<sup>4</sup> Fill in if the information has been requested.




BUDAPEST TREATY ON THE INTERNATIONAL  
RECOGNITION OF THE DEPOSIT OF MICROORGANISMS  
FOR THE PURPOSE OF PATENT PROCEDURES

INTERNATIONAL FORM

TO  
National University of Columbia  
Ciudad Universitaria, Rectoria General  
Bogota, Columbia  
South America

RECEIPT IN THE CASE OF AN ORIGINAL DEPOSIT  
issued pursuant to Rule 7.1 by the  
INTERNATIONAL DEPOSITORY AUTHORITY  
identified at the bottom of this page

NAME AND ADDRESS  
OF DEPOSITOR

<b>I. IDENTIFICATION OF THE MICROORGANISM</b>	
Identification reference given by the DEPOSITOR:  Lactococcus lactis IBUN91.2.98	Accession number given by the INTERNATIONAL DEPOSITORY AUTHORITY:  NRRL B-30656
<b>II. SCIENTIFIC DESCRIPTION AND/OR PROPOSED TAXONOMIC DESIGNATION</b>	
The microorganism identified under I. above was accompanied by:	
<input type="checkbox"/> a scientific description	
<input checked="" type="checkbox"/> a proposed taxonomic designation (Mark with a cross where applicable)	
<b>III. RECEIPT AND ACCEPTANCE</b>	
This International Depository Authority accepts the microorganism identified under I. above, which was received by it on May 15, 2003 (date of the original deposit) <sup>1</sup>	
<b>IV. RECEIPT OF REQUEST FOR CONVERSION</b>	
The microorganism identified under I. above was received by this International Depository Authority on (date of the original deposit) and a request to convert the original deposit to a deposit under the Budapest Treaty was received by it on (date of receipt of request for conversion).	
<b>V. INTERNATIONAL DEPOSITORY AUTHORITY</b>	
Name: Agricultural Research Culture Collection (NRRL) International Depository Authority  Address: 1815 N. University Street Peoria, Illinois 61604 U.S.A.	Signature(s) of person(s) having the power to represent the International Depository Authority or of authorized official(s):  Date: 5-19-03

<sup>1</sup> Where Rule 6.4(d) applies, such date is the date on which the status of international  
depository authority was acquired.